

Mass, Weight, Density or Specific Gravity of Liquids



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## specific gravity of liquids

## Density, mass, SG of Liquids.



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The density of over 150 different liquids are listed below. While the data is useful for design, individual samples will differ. Temperature and purity will often have a marked influence.

As 1000kg of pure water @ 4°C = 1 cubic metre, those materials under 1000kg/cubic metre will float; more dense will sink ie. those materials with a specific gravity more than 1. More detailed data on **water** is on another page.

Pure water at 4°C (max. density) was chosen as the 'base line' for **specific gravity** and given the value of 1.

Some other standards set pure water at 60°F as sg = 1 so it is more correct to state the base used.

The specific gravity of all other materials are compared to water as a fraction heavier or lighter density.

For example, acetic acid has a specific gravity (sg) of 1.0491 while acetone has a sg of 0.785 (784.58 kg/cu.m) - see table below.

As specific gravity is just a comparison, it can be applied across any units. The density of pure water is also 62.4 lbs/cu.ft (pounds per cubic foot) and if we know that a sample of ethyl alcohol has a sg of 0.785 then we can calculate that its density is 0.785 x 62.4 = 49 lbs/cu.ft.

Note, kg/cu.m divided by 16.02 = lbs/cu.ft.

kg/cu.m divided by 1,000 = g/ml (grams per millilitre) and also = kg/L (1000g = 1 kg and 1000ml = 1 Litre)

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Liquid	Temp	kg/cu.m
1,1,2-Trichlorotrifluoroethane	25 C	1564.00
1,2,4-Trichlorobenzene	20 C	1454.00
1,4-Dioxane	20 C	1033.60
2-Methoxyethanol	20 C	964.60
Acetic Acid	25 C	1049.10
Acetone	25 C	784.58
Acetonitrile	20 C	782.20
Alcohol, ethyl	25 C	785.06
Alcohol, methyl	25 C	786.51
Alcohol, propyl	25 C	799.96
Ammonia (aqua)	25 C	823.35
Aniline	25 C	1018.93
Automobile oils	15 C	880 - 940
Beer (varies)	10 C	1010
Benzene	25 C	873.81
Benzil	25 C	1079.64
Brine	15 C	1230
Bromine	25 C	3120.40
Butyric Acid	20 C	959
Butane	25 C	599.09

<i>n</i> -Butyl Acetate	20 C	879.60
<i>n</i> -Butyl Alcohol	20 C	809.70
<i>n</i> -Butyl Chloride	20 C	886.20
Caproic acid	25 C	921.06
Carbolic acid	15 C	956.30
Carbon disulfide	25 C	1260.97
Carbon tetrachloride	25 C	1584.39
Carene	25 C	856.99
Castor oil	25 C	956.14
Chloride	25 C	1559.88
Chlorobenzene	20 C	1105.80
Chloroform	20 C	1489.20
Chloroform	25 C	1464.73
Citric acid	25 C	1659.51
Coconut oil	15 C	924.27
Cotton seed oil	15 C	925.87
Cresol	25 C	1023.58
Creosote	15 C	1066.83
Crude oil, 48° API	60 F	790
Crude oil, 40° API	60 F	825
Crude oil, 35.6° API	60 F	847
Crude oil, 32.6° API	60 F	862
Crude oil, California	60 F	915
Crude oil, Mexican	60 F	973
Crude oil, Texas	60 F	873
Cumene	25 C	860.19
Cyclohexane	20 C	778.50
Cyclopentane	20 C	745.40
Decane	25 C	726.28
Diesel fuel oil 20 to 60	15 C	820 - 950
Diethyl ether	20 C	714
<i>o</i> -Dichlorobenzene	20 C	1305.80
Dichloromethane	20 C	1326.00
Diethylene glycol	15 C	1120
Dichloromethane	20 C	1326.00
Dimethyl Acetamide	20 C	941.50
<i>N,N</i> -Dimethylformamide	20 C	948.70
Dimethyl Sulfoxide	20 C	1100.40
Dodecane	25 C	754.63
Ethane	-89 C	570.26
Ether	25 C	72.72
Ethylamine	16 C	680.78
Ethyl Acetate	20 C	900.60

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Ethyl Alcohol	20 C	789.20
Ethyl Ether	20 C	713.30
Ethylene Dichloride	20 C	1253.00
Ethylene glycol	25 C	1096.78
Fluorine refrigerant R-12	25 C	1310.95
Formaldehyde	45 C	812.14
Formic acid 10% concentration	20 C	1025
Formic acid 80% concentration	20 C	1221
Freon - 11	21 C	1490
Freon - 21	21 C	1370
Fuel oil	60 F	890.13
Furan	25 C	1416.03
Furforol	25 C	1154.93
Gasoline, natural	60 F	711.22
Gasoline, Vehicle	60 F	737.22
Gas oils	60 F	890
Glucose	60 F	1350 - 1440
Glycerin	25 C	1259.37
Glyme	20 C	869.10
Glycerol	25 C	1126.10
Heptane	25 C	679.50
Hexane	25 C	654.83
Hexanol	25 C	810.53
Hexene	25 C	671.17
Hydrazine	25 C	794.52
Iodine	25 C	4927.28
Ionene	25 C	932.27
Isobutyl Alcohol	20 C	801.60
Iso-Octane	20 C	691.90
Isopropyl Alcohol	20 C	785.40
Isopropyl Myristate	20 C	853.20
Kerosene	60 F	817.15
Linolenic Acid	25 C	898.64
Linseed oil	25 C	929.07
Methane	-164 C	464.54
Methanol	20 C	791.30
Methyl Isoamyl Ketone	20 C	888.00
Methyl Isobutyl Ketone	20 C	800.80
Methyl <i>n</i> -Propyl Ketone	20 C	808.20
Methyl <i>t</i> -Butyl Ether	20 C	740.50
<i>N</i> -Methylpyrrolidone	20 C	1030.40
Methyl Ethyl Ketone (MEK)	20 C	804.90
MEK	25 C	802.52

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Milk	15 C	1020 - 1050
Naphtha	15 C	664.77
Naphtha, wood	25 C	959.51
Napthalene	25 C	820.15
Ocimene	25 C	797.72
Octane	15 C	917.86
Olive oil	20 C	800 - 920
Oxygen (liquid)	-183 C	1140
Palmitic Acid	25 C	850.58
Pentane	20 C	626.20
Pentane	25 C	624.82
Petroleum Ether	20 C	640.00
Petrol, natural	60 F	711.22
Petrol, Vehicle	60 F	737.22
Phenol	25 C	1072.28
Phosgene	0 C	1377.59
Phytadiene	25 C	823.35
Pinene	25 C	856.99
Propane	-40 C	583.07
Propane, R-290	25 C	493.53
Propanol	25 C	804.13
Propylene Carbonate	20 C	1200.60
Propylene	25 C	514.35
<i>n</i> -Propyl Alcohol	20 C	803.70
Propylene glycol	25 C	965.27
Pyridine	25 C	978.73
Pyrrole	25 C	965.91
Rape seed oil	20 C	920
Resorcinol	25 C	1268.66
Rosin oil	15 C	980
Sabiname	25 C	812.14
Sea water	25 C	1025.18
Silane	25 C	717.63
Sodium Hydroxide (caustic soda)	15 C	1250
Sorbaldehyde	25 C	895.43
Soya bean oil	15 C	924 - 928
Stearic Acid	25 C	890.63
Sulphuric Acid 95% conc.	20 C	1839
Sugar solution 68 brix	15 C	1338
Sunflower oil	20 C	920
Styrene	25 C	903.44
Terpinene	25 C	847.38
Tetrahydrofuran	20 C	888.00

Toluene	20 C	866.90
Toluene	25 C	862.27
Triethylamine	20 C	727.60
Trifluoroacetic Acid	20 C	1489.00
Turpentine	25 C	868.20
Water, pure ( <u>more temperatures</u> )	4 C	1000.00
Water, sea	77 F	1021.98
Whale oil	15 C	925
o-Xylene	20 C	880.20

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